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Interaction of Ataxia Telangiectasia Mutated (*ATM*) Genotypes and Smoking Habits and Their Contribution to Lung Cancer Risk

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Backgrounds: The study aimed to evaluate the association and interaction of ataxia telangiectasia mutated (*ATM*) genetic polymorphisms and lung cancer risk in Taiwan, where the lung cancer is the primary cause of cancer death. In this study, associations of seven *ATM* single nucleotide polymorphisms (rs600931, rs652311, rs227060, rs227292, rs624366 and rs189037) with lung cancer risk were investigated. **Materials and Methods:** 358 lung cancer patients and 716 age- and gender-matched controls were genotyped and the genetic-lifestyle interaction was analyzed. **Results:** The results showed that the percentages of GG, AG and AA for *ATM* rs652311 genotypes were significantly different at 34.6%, 48.9% and 16.5% in the lung cancer patient group and 39.9%, 51.0% and 9.1% in the control group, respectively. We further analyzed the genetic-lifestyle effects on lung cancer risk finding the contribution of rs652311 A allele-bearing genotypes to lung cancer susceptibility was enhanced in the cigarette smokers but not in the non-smokers. **Conclusion:** Our results provide evidence that the A allele of *ATM* rs652311 may be associated with lung cancer risk, and may enhance the effects of smoking habit on lung cancer development.